**Mitosis vs. Meiosis Comparison Assignment**

Mrs. Krouse, AP Biology

***Directions:*** *Create the chart for #1 on a separate sheet of paper and complete them thoroughly and accurately. You may be able to fill in the information for charts #2 and #3 on this page.*

1. What events occur during each phase of mitosis and meiosis? (You do not have to write the same thing twice, just say “see \_\_\_\_\_\_\_\_\_\_”

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Interphase | Prophase | Metaphase | Anaphase | Telophase / Cytokinesis |
| Mitosis |  | Ex: chromatin coils into chromosomes, nuclear membrane and nucleolus break down, and the mitotic spindle is built. |  |  |  |
| Meiosis I |  |  |  |  |  |
| Meiosis II | Note: this only occurs in some species, and if it does, there is no S phase. |  |  |  |  |

2.If the amount of DNA in a somatic cell equals X during G1 of interphase, how much DNA is present in the cell during each of the phases of mitosis and meiosis?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Interphase (after the S stage, if applicable) | Prophase | Metaphase | Anaphase | Telophase / Cytokinesis  (assume we are looking for the amount of DNA in each daughter cell) |
| Mitosis | Ex: 2X (during the S stage, DNA is replicated) |  |  |  |  |
| Meiosis I | Ex: 2X (during the S stage, DNA is replicated) |  |  |  |  |
| Meiosis II |  |  |  |  |  |

3. Complete the chart below to identify the main differences between mitosis and meiosis.

|  |  |  |
| --- | --- | --- |
| **Difference** | **Mitosis** | **Meiosis** |
| 1. How many times does the original parent cell divide? (In other words, how many “rounds” of cell division take place?) |  |  |
| 2. How many daughter cells are created? |  |  |
| 3. Are the daughter cells diploid (2n) or haploid (n)? |  |  |
| 4. Are the daughter cells body cells (aka somatic cells) or sex cells (aka gametes)? |  |  |
| 5. Are the daughter cells identical to each other and the parent cell or different? |  |  |
| 6. Is this process used for growth, tissue repair, and asexual reproduction OR sexual reproduction? |  |  |